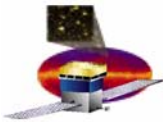


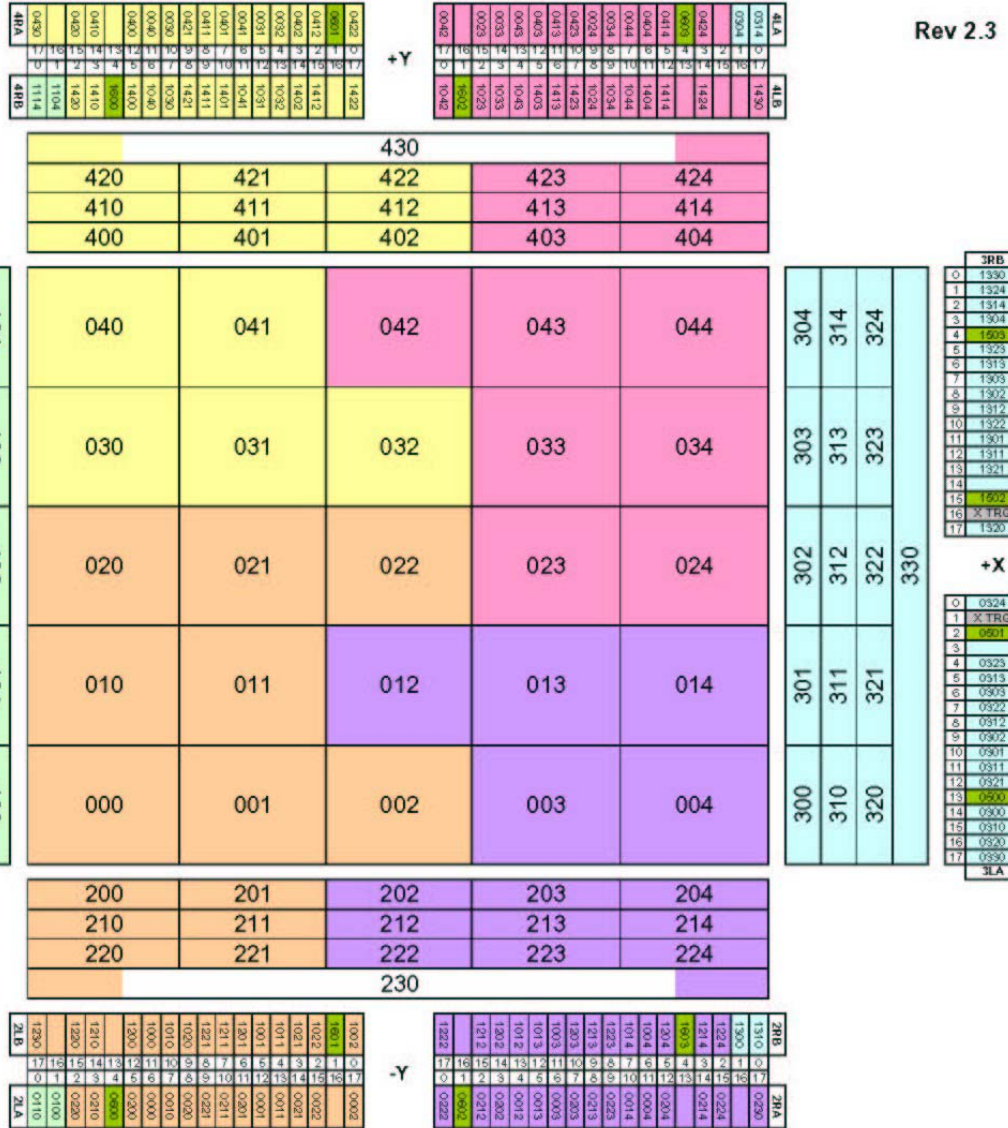
GLAST Large Area Telescope:

AntiCoincidence Detector (ACD) Configuration Change – Connector Placement

ACD Team
NASA Goddard Space Flight Center

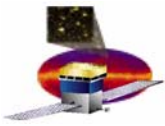


Origin of the Problem - 1



Mapping of the ACD tiles to phototubes specifies the data channel for each phototube signal on the FREE cards.

These channels are wired directly to the Global Trigger, so the mapping cannot easily be changed.

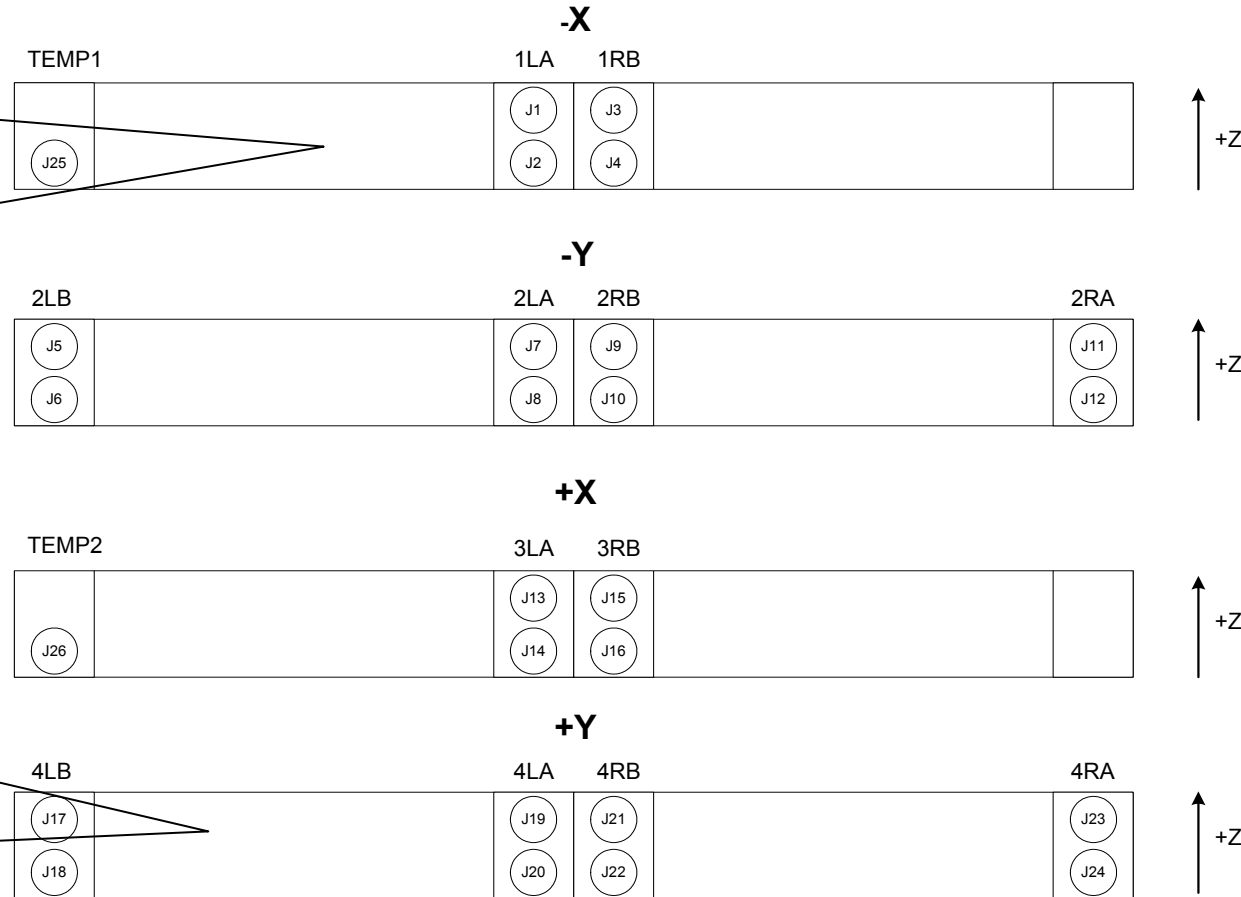


Origin of the Problem - 2

Problem is here: numbering of data channels requires a "left" FREE board, but the connectors on this type of board are on the left side, not the right side as shown.

Connector placement and tile to data channel mapping were completed well before FREE card channel layout. When FREE card design was done, did not cross-check for consistency.

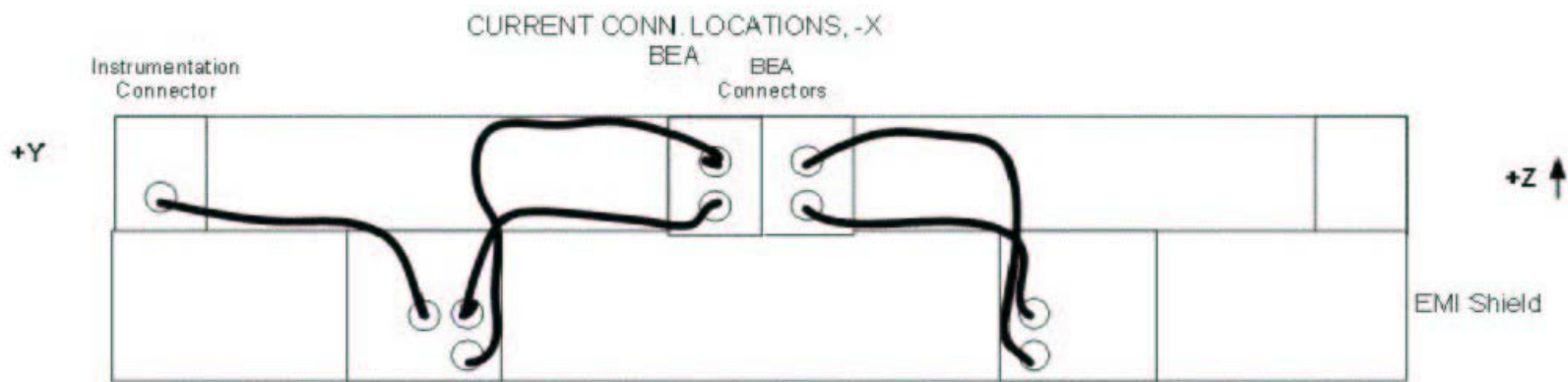
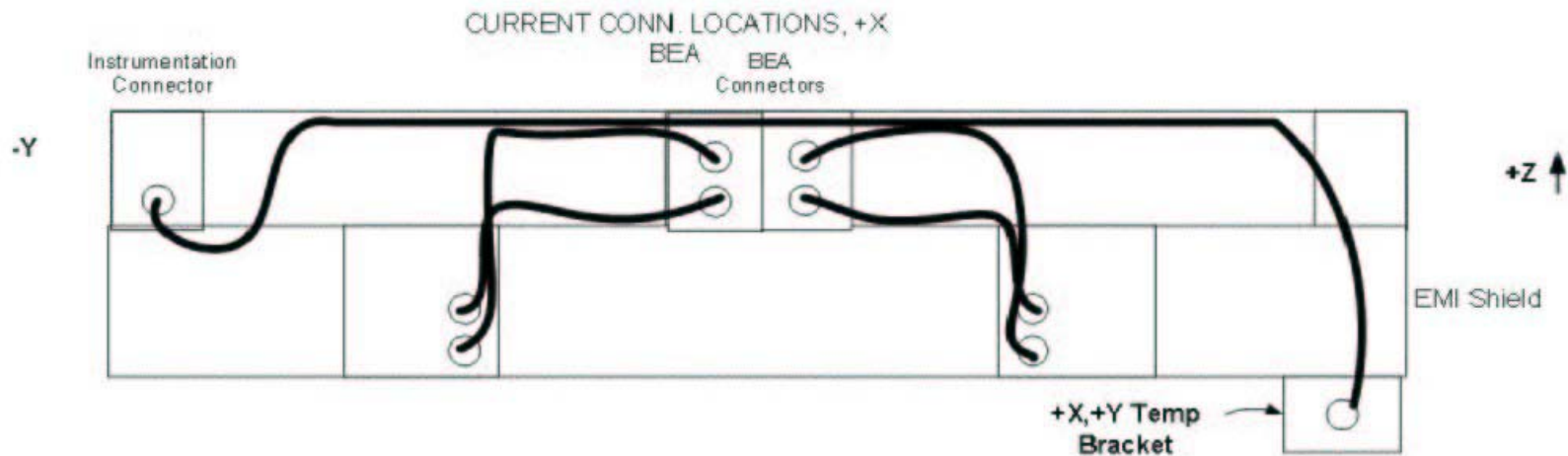
CURRENT CONNECTOR CONFIGURATION

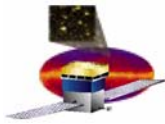


No problem on the Y side: two left boards and two right boards use all eight connector locations. Numbering matches ICD.



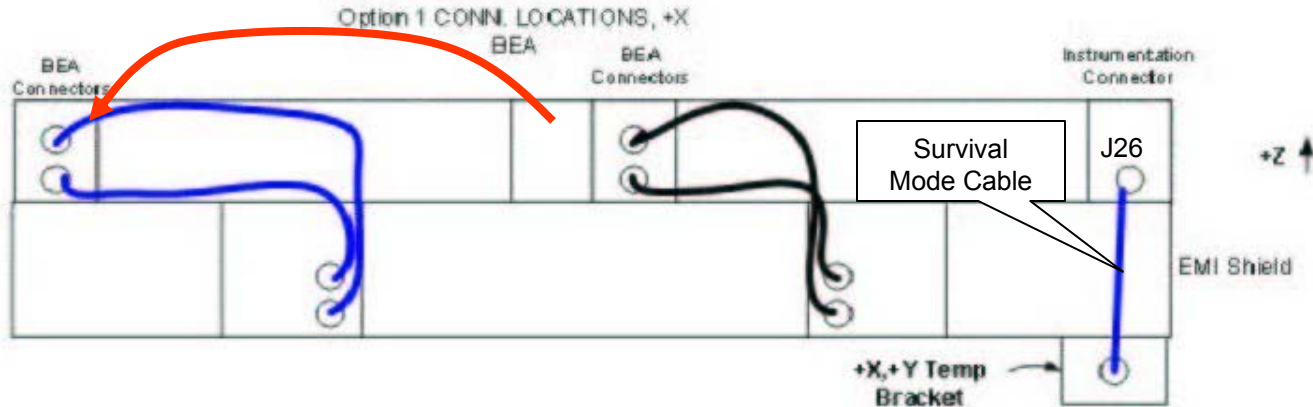
Moving connectors changes cable routing





Proposed Solution

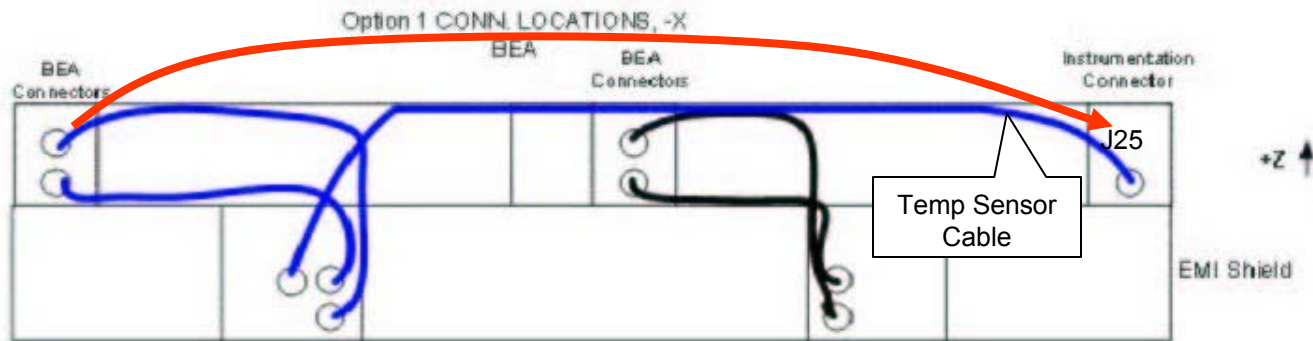
BEA connectors move to left side



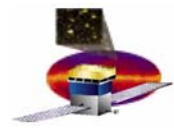
1. Switch to FREE card with correct channel numbering but with connectors to the left.

2. Move the instrumentation connectors to the right side

Instrumentation connectors move to right side



3. Re-route the cables across the BEA.



Proposed Solution

Implications:

- (1) No change in channel mapping, electronics, or data processing
- (2) Minor modification of BEA channel needed to move connectors.
- (3) BEA covers need to be stiffened to support the cables (increased mass).
- (4) Some cables must be re-routed.

Concerns:

- (1) Cables crossing on the outside of the BEA might violate stay-clear.
- (2) Structural re-analysis of BEA required, because supporting additional mass.